Panasonic
ideas for life

Super Dynamic III PLUS
Colour Surveillance Cameras
Product Line-Up

Super Dynamic III PLUS — Exceeding the human eye.

Panasonic introduces the Super Dynamic III PLUS Series, the first surveillance cameras able to think and act on their own.
They detect both external changes and attempts at interference and take the precise action required to prevent loss of vital scenes.
Superb image quality, the result of unprecedented image-processing performance, delivers a true picture needed for rock-solid identification.
With their extraordinary intelligence and active foresight, Super Dynamic III PLUS Series cameras bring amazing reality to 24-hour surveillance.

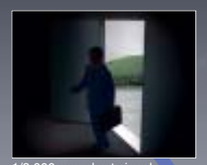
Cameras now provide a true picture for all surveillance purposes

Cameras now think — and act — preventing loss of vital scenes

The Leading Original Technologies Behind Super Dynamic III PLUS

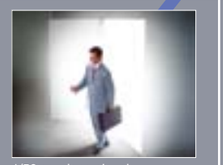
Pixel Based 160x Dynamic Range

The double speed CCD outputs a 1/8,000 second short signal to capture the bright area of the image and a 1/50 second long signal to capture the shaded area. The enhanced DSP combines these signals to provide a dynamic range 160 times greater than a standard video camera.
Also newly developed in the DSP is “Area Free (Pixel Based) Natural Contrast Image Correction”, which optimizes the gray-scale image in response to the Input Signal Level of each individual Pixel. The Pixel Based 160x Dynamic Range delivers a smoother natural reproduction of high contrast images, e.g. heavy backlight conditions, regardless of object position, size, shape, or number.



1/8,000 sec. short signal for the bright parts

Synthesis

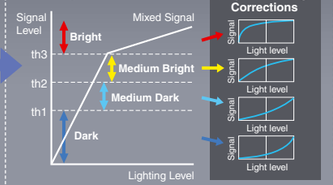


1/50 sec. long signal for the dark parts

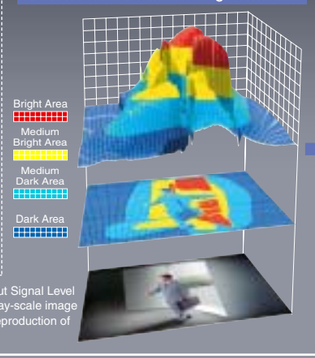
Gray-Scale Image Corrections Optimized for Input Signal Level

Input signals are divided into four levels and the appropriate gray-scale corrections are applied to each.

- Input Signal Threshold Level



Area Free Natural Contrast Image Correction

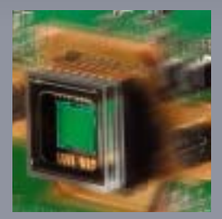


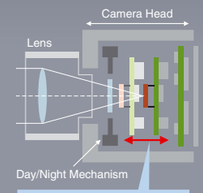
Super Dynamic III PLUS detects the Input Signal Level for each individual Pixel, optimizes gray-scale image per each level and provides natural reproduction of the object in any area of the image.

Super Dynamic III PLUS Output

Auto Back Focus (ABF) (WV-CP480 Series only)

When switching from colour to B/W mode, the WV-CP480 Series automatically adjusts the CCD position to achieve the return to perfect focus, Auto Back Focus. Blurring caused in previous cameras is eliminated by removing the IR cut filter. Then, when the camera switches back from B/W to colour mode, the CCD automatically returns to the correct position for colour imaging, ensuring perfect focus 24 hours, both night and day. Another important benefit of Auto Back Focus is eliminating the time and labor required to adjust focus after cameras have been installed. Focus can be roughly set when a camera is installed, then adjusted using the handheld remote controller.

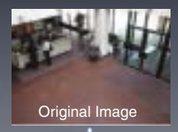




Whole CCD Printed Circuit Board moves to focus point

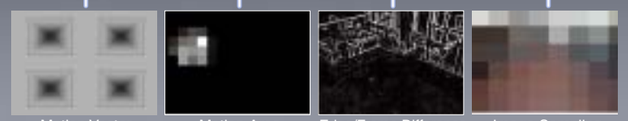
Intelligent Processing

Our newly developed DSP extracts Motion Vector, Motion Area, Edge/Frame Difference and Image Sampling data from the image and sends that data to the new Image Analysis Algorithm. The Algorithm is embodied in the proprietary microprocessor that performs the complex processing required by Super Dynamic III PLUS's amazing intelligent functions.



Original Image

- **Video Process in DSP**



Motion Vector | Motion Area | Edge/Frame Difference | Image Sampling

- **Software Process**

Motion Vector/Motion Area	Mot. Area/Frame Diff./Img. Samp.	Motion Area/Optical Zoom
Reliability/Dispersion Decision	Stable -> Unstable Detection	Zoom Coefficient Calculation
Integration/Centring of Motion	Unstable -> Stable Detection	Pan/Tilt Movement Calculation
Electronic Zoom Compensation	Compare between Stable Scenes	Command to Pan/Tilt
Auto Image Stabilizer	**Scene Change Detection**	**Auto Tracking***

*WV-CS950 Series only

The above photographs were taken for the purpose of this explanation; actual images may differ.

SEES REALITY

To show you reality clearly, Super Dynamic III PLUS cameras take image processing to new peaks, with all the contrast, detail and colour of reality itself, even in dimly lit situations. This breakthrough in visual surveillance delivers the definitive picture you need for accurate identification.

Whatever the Subject

Pixel Based 160x Dynamic Range

Super Dynamic III PLUS uses Area Free (Pixel Based) Natural Contrast Image Correction to optimize contrast and faithfully reproduce subjects in every area and position. Combining 1/8,000 sec. and 1/50 sec. shutter speed signals gives this amazing system a 160x Dynamic Range that makes it the perfect surveillance solution for ATMs, building entrances, and other situations where contrast changes depending on time, weather and season.

Conventional
Depending on subject position, the image may be marred by black spots or halo effects.

Super Dynamic III PLUS
Pixel Based 160x Dynamic Range faithfully reproduces every subject.

Real in the Smallest Detail

540-line Horizontal Resolution

The combination of optimized filtering with wide bandwidth digital signal processing developed for the Super Dynamic III PLUS DSP delivers colour images with 540 lines (typical) and B/W images with 570 lines of horizontal resolution, revealing the picture's smallest detail.

Realistic Natural Colour

Colour Processing Enhancements

To ensure that what you see is the full range of natural colour, the digital colour circuitry in our newly developed DSP processes colour at a finer level of detail, enabling reproduction of even poorly illuminated or pale colours.

Better in Low Light

As Low as 0.5 lux

WV-CS950 Series can be used in lighting as low as 0.5 lux (colour) or 0.04 lux (B/W). When equipped with the optional F1.2 lens, the WV-CP480 Series deliver clear, sharp images in lighting as low as 0.5 lux (colour) or 0.06 lux (B/W).

Conventional

Super Dynamic III PLUS

With No Streaking

Adaptive Digital Noise Reduction

The combination of 2D DNR processing for the moving subject with 3D DNR for the background corrects movement-generated streaking. Now even the headlights of moving cars can been seen clearly, unmarred by the streaks of light produced by previous 3D DNR subject-image processing.

Conventional

Super Dynamic III PLUS

Zoom in to Catch Distant Subjects (WV-CS950 Series only)

30x Optical Zoom (Up to 300x with Digital Zoom)

WV-CS950 Series comes equipped with a 30x optical zoom lens. The addition of 10x digital zoom means zoom capability up to 300x, allowing you to zoom in on distant subjects in high position, wide area surveillance applications. Combined with high image quality, the result is a new advance in identification capability.

0.065°/sec. Super Fine Pan Control

Our proprietary control chip, DC brushless motor and the optimized speed profile built into the microprocessor give you 0.065°/sec. Super Fine Pan Control. Combined with high-performance zoom, this feature enables you to smoothly track and capture moving subjects.

Conventional **WV-CS950 Series** **Conventional**

THINKS ACTIVELY

Confronted with changing environments or attempts at interference, these cameras think — and then act — to deliver the best possible image. Super smart, Super Dynamic III PLUS offers the active reliability to ensure the results you need under a wide variety of conditions for a host of applications.

Sharply Focused Day and Night

Auto Back Focus (ABF) (WV-CP480 Series only)

In WV-CP480 Series cameras, the ABF feature automatically adjusts the CCD position when changing from colour to B/W mode, optimizing the back focus required for clear, sharp images. In addition, the one-push Auto Focus feature sharply reduces the time required to focus cameras during installation, allowing focus to be set using the handheld remote controller.

Day Night Night

Conventional **Super Dynamic III PLUS**

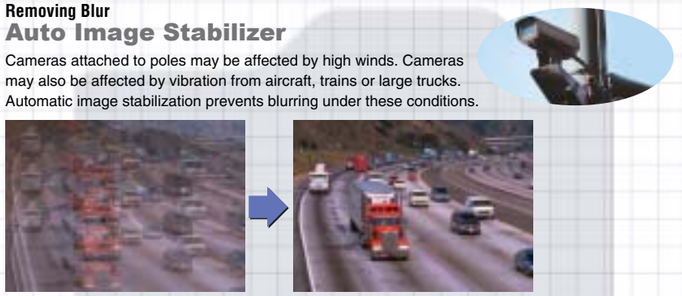
Auto Focus (WV-CS950 Series only)

WV-CS950 Series cameras are all equipped with Auto Focus, ensuring that what you see is always sharply in focus.

Removing Blur

Auto Image Stabilizer

Cameras attached to poles may be affected by high winds. Cameras may also be affected by vibration from aircraft, trains or large trucks. Automatic image stabilization prevents blurring under these conditions.

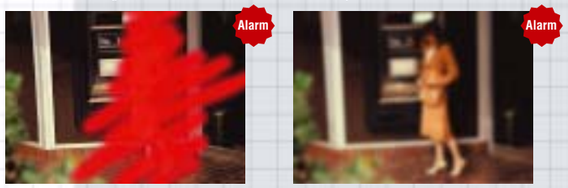


Conventional **Super Dynamic III PLUS**

Detecting Interference

Scene Change Detection

This feature detects interference and sends an alarm signal when the camera's operation has been hampered with, such as a manual change in the camera's angle, removal of the camera lens, defocus, blockage of the camera lens with cloth or paint.



Following Intruders

Auto Tracking (WV-CS950 Series only)

This feature automatically follows the largest movement in the image, causing the camera to pan and tilt to keep the subject in the centre of the image. Ideal for detecting intruders in vaults, pharmaceutical or chemical labs, prisons, or wherever access is limited. It is also the perfect solution for banks, restaurants, department stores and warehouses at night when no activity should be taking place.

The above photographs were taken for the purpose of this explanation; actual images may differ.

Super Dynamic III PLUS
Colour Dome Cameras

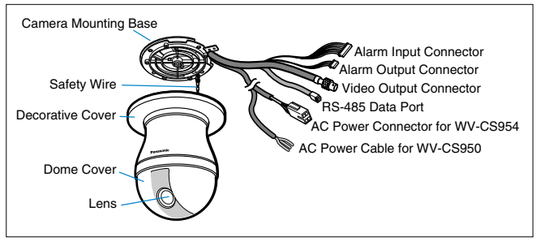
WV-CS950 SERIES

WV-CS950 (AC 220V - 240V)
WV-CS954 (AC 24V)

30x Optical Zoom. Auto Tracking. 256 Presets.

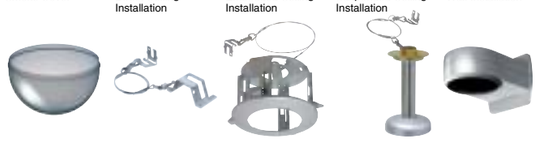
- All-in-one colour surveillance dome camera unit.
- The new Pixel Based 160x Dynamic Range with area free natural contrast image correction adjusts moment-to-moment changes in contrast to view subjects accurately in all areas and positions.
- Higher horizontal resolution of 540-line (typical) at colour mode, and 570-line at B/W mode.
- Minimum illumination of 0.5 lux at colour mode, and 0.04 lux at B/W mode (Sens. up; off, AGC High).
- Innovative intelligent features:
  - Auto image stabilizer function for applications where vibration or wind is a concern, e.g. passing vehicles.
  - Scene change detection alarms when lens is covered, spray painted, removed, defocus or camera angle is changed.
  - Auto tracking function tracks moving objects and keeps them centred in the field of view. Perfect for restricted areas and after hour applications.
- Day/Night operation can be selected to automatically or manually switch from colour to B/W.
- Privacy zone masking function.
- Linear 32x electronic sensitivity enhancement function.
- Digital motion detector.
- 30x optical zoom lens (3.8 - 114 mm at F1.4) plus 10x electronic digital zoom for total zoom capacity of 300x.
- Auto focus lens.
- Digital-FLIP by memory allows automatic 180° turn.
- Patrol Learn function (8 zone total).
- Auto panning function with 256 preset positions.
- 360° endless panning.
- Panning speed of max. 400°/s at preset mode and 0.065°/s super fine control at manual mode.
- Image Hold function during panning.
- Multiplex-coaxial or RS-485 data communication.
- Four (4) alarm inputs and two (2) outputs terminals.
- 16 alphanumeric character display.
- Internal/Line-lock/Multiplexed Vertical Drive (VD2) synchronization.
- Optional smoked dome cover, ceiling and wall mounts brackets are available for various applications.

MAJOR OPERATING CONTROLS & TERMINALS



OPTIONAL ACCESSORIES

WV-CS3S Smoke Cover
WV-Q105 Direct Ceiling Installation
WV-Q116 Embedded Ceiling Installation
WV-Q117 Suspended Ceiling Installation
WV-Q118 Wall Installation



SPECIFICATIONS PAL CCIR

Model No.	WV-CS950	WV-CS954
General		
Pick-up Device	1/4-type interline transfer CCD	
Effective Pixels	752 (H) x 582 (V)	
Scanning Area	3.6 mm (H) x 2.7 mm (V)	
Signal	PAL/CCIR	
Synchronization	Internal / Line-Lock / Multiplexed Vertical Drive (VD2)	
Scanning	2:1 interlace	
Scanning Frequencies	Horizontal: 15.625 kHz, Vertical: 50 Hz	
Video Output	VBS: 1.0 V [p-p] /75 Ω (BNC connector)	
Horizontal Resolution (Centre)	540 lines (in colour, typical) 520 lines minimum (in colour, HIGH mode) 480 lines minimum (in colour, NORMAL mode) 570 lines minimum (in B/W)	
Minimum Illumination	0.5 lux (in colour) 0.04 lux (in B/W) *SENSE UP: OFF, AGC: HIGH	
Dynamic Range	52 dB typical (SUPER-DYNAMIC III PLUS: ON)	
Signal-to-Noise Ratio	50 dB minimum (AGC: OFF)	
Ambient Operating Temperature	−10 °C - +50 °C Humidity; 90 % max. (non-condensation)	
Power Source and Consumption	220 V - 240 V AC, 50 Hz; 13 W	24 V AC, 50 Hz; 13 W
Dimensions	154.5 mm (D) x 233 mm (H)	
Weight	approx. 2.2 kg	
Pan and Tilt		
Panning Range	360° endless	
Panning Modes	Manual, auto, manual position, sequential position	
Panning Speed*	Manual: approx. 0.065°/s - 120°/s 8 steps, 16 steps, 64 steps Preset: approx. 400°/s	
Tilting Range	−5° - 185° (horizontal - vertical - horizontal) (According to the TILT ANGLE)	
Tilting Modes	Manual, manual position, sequential position	
Tilting Speed*	Manual: approx. 0.065°/s - 120°/s 8 steps, 16 steps, 64 steps Preset: approx. 400°/s	
* Actual speed depends on type of optional controller being used.		
Lens		
Zoom Ratio	300x (30x optical zoom plus 10x electronic digital zoom)	
Focal Length	3.8 mm - 114 mm	
Maximum Aperture Ratio	1:1.4 (WIDE) - 3.7 (TELE)	
Object Distance	1.5 m	
Iris Range	F1.4 - 22, Close	
Angular Field of View	Horizontal: 1.9° (TELE) - 52° (WIDE) Vertical: 1.4° (TELE) - 40° (WIDE)	
Main Functions		
Controller Interface	Coaxial Multiplex System, RS-485 Transmission	
Control Functions	Pan and tilt, zoom and focus, 256 preset positions, home position, patrol	
AGC	ON (LOW/MID/HIGH), OFF	
Character Display	ON, OFF (Preset ID, camera ID, area title: 16 alphanumeric characters)	
Zoom Speed	approx. 6.0 seconds (TELE to WIDE) in manual mode	
Zoom Ratio Control	1x - 300x (Over 30x is electronic zoom)	
Password Lock	All menus	
Focus Speed	approx. 6.0 seconds (FAR to NEAR, full TELE zoom) in manual mode	
Auto Focus	MANUAL/AUTO (PAN, TILT, ZOOM linked)	
Iris	ALC (Adjustable OPEN/CLOSE output target level)/MANUAL	
Shutter	OFF (1/50), AUTO, 1/120, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000	
Electronic Sensitivity Enhancement	32x max. (AUTO or FIX)	
Auto Mode	OFF, SEQ, SORT, AUTO PAN, PATROL, AUTO TRACK	
Auto Pan Key	SEQ, SORT, AUTO PAN, PATROL, AUTO TRACK	
Digital Flip	ON/OFF	
Super Dynamic III PLUS	ON/OFF	
Motion Detector	OFF/MODE1/MODE2	
Alarm Input/Output	4 inputs (ALARM IN 1 - ALARM IN 4) 2 outputs (ALARM/AUX1, BW/AUX2)	
Black and White Mode Switching	AUTO/ON/OFF	
Privacy Zone	ON/OFF (8 zone settings)	
Patrol	STOP/PLAY/LEARN	
Cleaning	ON/OFF	
Image Hold	ON/OFF	
STABILIZER	ON/OFF	
Scene Select Setting	INDOOR (L) / INDOOR (H) / OUTDOOR (L) / OUTDOOR (H)	
Language Setting	English, German, French, Italian, Spanish, Russian, Chinese, Japanese	

Super Dynamic III PLUS
Colour Surveillance Cameras

WV-CP480 SERIES

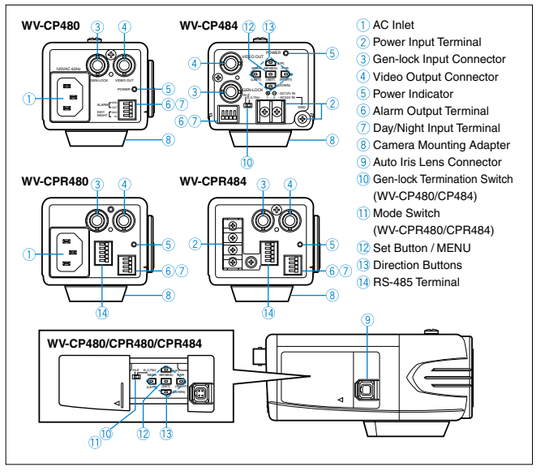
WV-CP480 (AC 220V - 240V)
WV-CP484 (AC 24V OR DC 12V)
WV-CPR480 (AC 220V - 240V, with RS-485 terminal)
WV-CPR484 (AC 24V OR DC 12V, with RS-485 terminal)

Auto Back Focus

Auto Back Focus, Sharper Images 24-hours a Day.

- 1/3-type double speed CCD colour image sensor.
- The new Pixel Based 160x Dynamic Range with area free natural contrast image correction adjusts moment-to-moment changes in contrast to view subjects accurately in all areas and positions.
- Switches from selected colour mode to B/W mode, automatically or manually.
- Higher horizontal resolution of 540-line (typical) at colour mode, and 570-line at B/W mode.
- Minimum illumination :
  0.5 lux at colour mode, 0.06 lux at B/W mode, at F1.2 optional lens
  0.6 lux at colour mode, 0.08 lux at B/W mode, at F1.4 optional lens
- Innovative intelligent features :
  - Auto Back Focus (ABF) adjustment function, for easy focus at installation and remote focus fine tuning (up-the-coax or via network by WJ-HD300 Series) after installation.
  - Auto image stabilizer function for applications where vibration or wind is a concern, e.g. passing vehicles.
  - Scene change detection alarms when lens is covered, spray painted, removed, defocus or camera angle is changed.
- Signal to noise ratio of 50dB.
- Digital motion detector.
- Menu setup can be displayed in 8 (eight) languages: English, German, French, Spanish, Italian, Russian, Chinese and Japanese.
- 16-alphanumeric character display.
- Electronic shutter from 1/50 (off) to 1/10,000 sec.
- Electronic sensitivity enhancement (auto/manual/off).
- Digital signal processing LSI's for high quality picture:
  2H vertical enhancement, chroma averaging circuit, minimum of aliasing, knee circuit, and highlight aperture correction.
- Gen-lock capability for the large system application.
- VD2 sync capability with Panasonic system products.
- Remote control function with single coaxial cable (WV-CP480/WV-CP484) or RS-485 terminal (WV-CPR480/WV-CPR484).
- Accepts both 24V AC or 12V DC power source (WV-CP484/WV-CPR484 models).

MAJOR OPERATING CONTROLS & TERMINALS



SPECIFICATIONS PAL CCIR

Model No.	WV-CP480	WV-CP484	WV-CPR480	WV-CPR484
Pick-up Device	752 (H) x 582 (V) pixels, interline transfer CCD			
Scanning Area	4.8 (H) x 3.6 (V) mm (Equivalent to scanning area of 1/3" pick-up tube)			
Scanning	625 lines/50 fields/25 frames			
Horizontal	15.625 kHz			
Vertical	50 Hz			
Synchronization	Multiplexed vertical drive (VD2), Line-locked, VBS/VS, or Internal			
GEN LOCK Input	VBS/VS 1.0 V [p-p] composite 75 Ω / BNC connector			
Video Output	1.0 V [p-p] PAL/CCIR composite 75 Ω / BNC connector			
Horizontal Resolution	540 lines (in Colour, Typical) 520 lines min. (in Colour, at High) 480 lines (in Colour, Normal) 570 lines (in B/W)			
Signal-to-Noise Ratio	50 dB (Equivalent to AGC Off, weight On)			
Dynamic Range	52 dB typical			
Minimum Illumination	0.5 lux at F1.2 (in Colour) 0.6 lux at F1.4 (in Colour) 0.06 lux at F1.2 (in B/W) 0.08 lux at F1.4 (in B/W)			
Lens Mount	CS-mount			
Major Items on Menu Setup				
Language	English, French, German, Spanish, Italian, Russian, Chinese, or Japanese			
Camera ID	Up to 16 characters			
Light Control	ALC/ELC			
Super Dynamic III PLUS	ON or OFF			
Electronic Shutter Speed	1/50(OFF), 1/120, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000 s			
Gain Control	ON (HIGH), ON (MID), ON (LOW), or OFF			
Sensitivity Enhancement	OFF, x2AUTO, x4AUTO, x6AUTO, x10AUTO, x2FIX, x4FIX, x6FIX, x10FIX, x16FIX, x32FIX			
White Balance	ATW1, ATW2 or AWC			
Motion Detection	ON (Mode1/Mode2) / OFF			
Digital Noise Reduction	High or Low			
Resolution	Normal or High			
Black-and-White Mode	AUTO1, AUTO2, EXT, ON, or OFF			
Privacy Zone	ON (On1/On2) / OFF			
Mirror	ON or OFF			
ALC Lens Drive	DC or Video			
Camera-Shake Compensation	ON or OFF			
Back Focus Adjustment	Auto Back Focus, MANUAL, AUTO/PRESET/FIX			
Special	Chroma, Aperture, Pedestal adjustable			
Communication	Single wire		RS-485	
Ambient Operating Temperature	−10 °C - +50 °C			
Ambient Operating Humidity	Less than 90 %			
Power Source and Power Consumption	220 V - 240 V 50 Hz, 4.6 W	24 V AC 50 Hz, 4.7 W 12 V DC, 420 mA	220 V - 240 V 50 Hz, 5.1 W	24 V AC 50 Hz, 5.1 W 12 V DC, 460 mA
Dimensions (without lens) (W x H x D)	70 x 65 x 129 mm	67 x 65 x 100 mm	70 x 65 x 129 mm	
Weights (without lens)	520 g (without power cord)	400 g	540 g (without power cord)	520 g

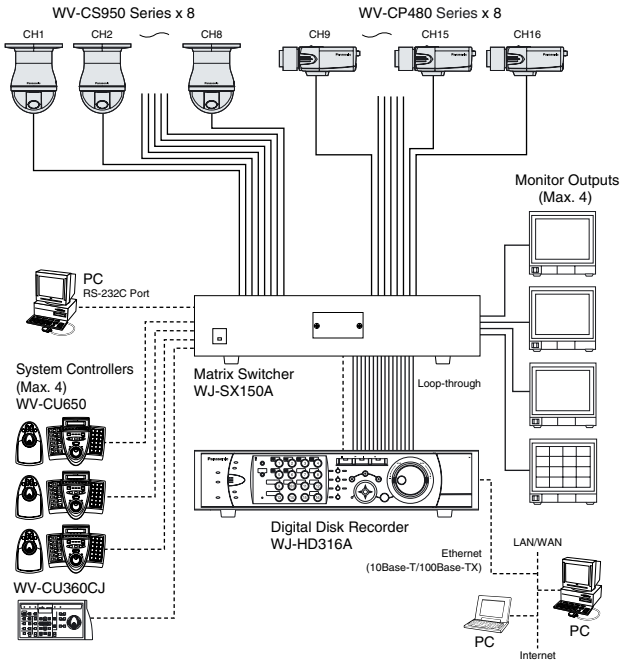
OPTIONAL ACCESSORIES

1/3-type Variable Focal Lens
WV-LZA61/2S
(3.8 - 8 mm)

1/3-type Variable Focal Lens
WV-LZ62/8S
(5 - 40 mm)

SYSTEM EXAMPLES

1



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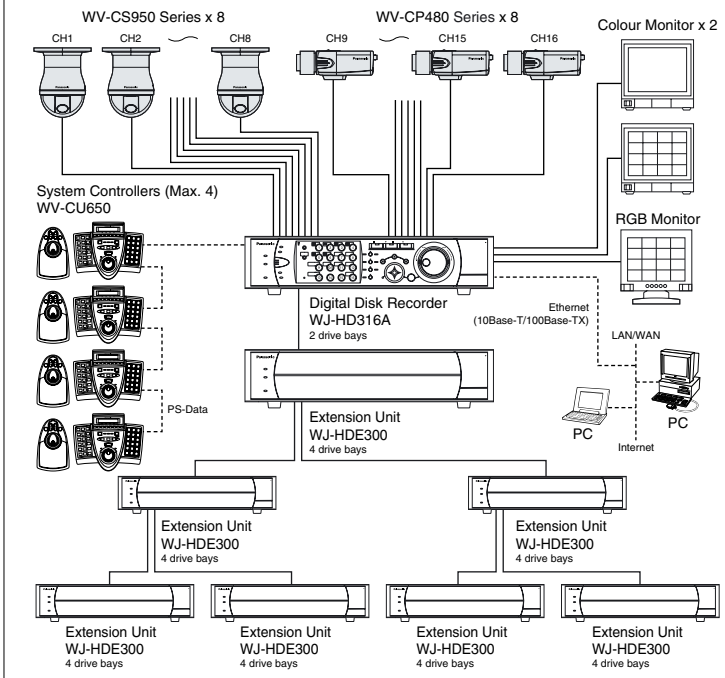


OPTIONAL COMPONENTS & ACCESSORIES

DIGITAL DISK RECORDERS

WJ-HD316A (16ch)
WJ-HD309A (9ch)
WJ-HD220 (8ch)

PS·Data

SYSTEM CONTROLLERS

WV-CU650
WV-CU360CJ

PS·Data

MATRIX SYSTEMS

SYSTEM 850
SYSTEM 500
SYSTEM 150

COLOUR MONITORS

WV-CM2080 55cm CRT PS·Data
WV-CM1780 45cm CRT PS·Data
WV-CM1480 40cm CRT PS·Data
WV-CM1420 37cm CRT
WV-CM1020 25cm CRT

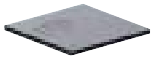
Panasonic Preserving the Environment

Energy Saving

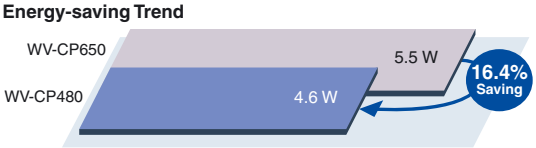
Panasonic has used proprietary technology to develop the low-energy DSP's that have, for example, reduced energy consumption in our cameras by 16.4% since 1997, from 5.5 watts (WV-CP650) to 4.6 watts (WV-CP480).

Colour Surveillance Camera
WV-CP480

Image processing DSP



Energy-saving Trend



Package Recycling

To reduce waste and pollution, we have eliminated Styrofoam and minimized use of polyurethane film in our packaging.

Carton box for
WV-CP480 Series

Lead-free Solder

The hazardous effects of lead solder have been recognized since the 1980s. Panasonic has been a leader in addressing this issue and in 1998 introduced the world's first portable MD player with lead-free solder in its circuit board. The Security Systems Division is now phasing out use of lead solder in all of its products.

ISO14001 Certification

Besides our R&D Division, Panasonic has achieved the environmental ISO14001 certification for plants in Yokohama, Japan, the Philippines, and in Suzhou, China.

Important – Safety Precaution: carefully read the operating instructions and installation manual before using this product.
• All TV pictures are simulated. • Weights and dimensions are approximate. • Specifications are subject to change without notice. • These products may be subject to export control regulations.

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Panasonic

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